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(54) **METHOD FOR EFFICIENT DATA TRANSFERS BETWEEN DOMAINS OF DIFFERING DATA FORMATS**

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(57) **ABSTRACT**

A method for efficient data transfers between domains of differing data formats. In one exemplary implementation, data transfer is performed with respect to an IEEE 1394 communication domain and an Ethernet communication domain. The novel data transfer method advantageously eliminates the need to copy the data payload section of a received data packet from one memory region to another memory region within a bridge device coupled between first and second communication domains. Specifically, the header, data payload and trailer sections of a received data packet (of a first communication domain format) are copied into a first portion of memory within the bridge device. The present invention then assembles a new data packet by constructing a new header of a second communication domain and appending a pointer to the new header that points to the data payload location within the first portion of memory. The header includes a destination address obtained from the data payload location and a source address of the bridge device. The new packet is of the second communication domain. The bridge device then transmits the new header section to the second communication domain and forwards the data payload therewith using the pointer as a reference. Domain interface controller circuits then add the new trailer, as required, to the new packet. By passing a pointer to the data payload, the present invention eliminates the need to copy the data payload from one region of memory to another during the transfer operation.

20 Claims, 13 Drawing Sheets